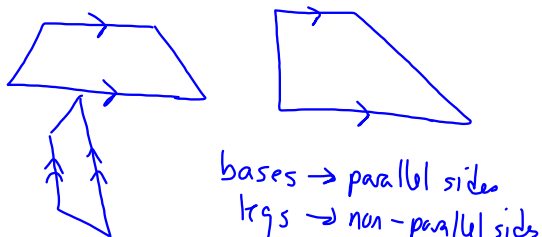
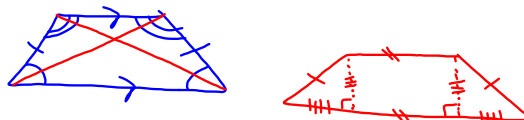


8-6 Trapezoids

trapezoid--quadrilateral with exactly one pair of parallel sides



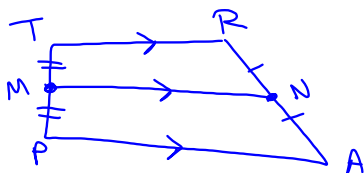
isosceles trapezoid-- congruent legs



Theorem 8.18--Both pairs of base angles of an isosceles trapezoid are congruent

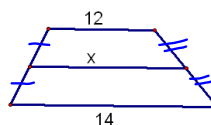
Theorem 8.19--The diagonals of an isosceles trapezoid are congruent

Median--joins the midpoints of the legs



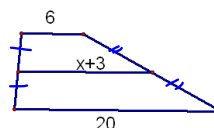
Theorem 8.20--The median of a trapezoid is parallel to the bases and $= \frac{1}{2}$ the sum of the bases

\overline{MN} is the median $\overline{MN} \parallel \overline{TR} \parallel \overline{AP}$
 $MN = \frac{1}{2}(TR + AP)$



$$x = \frac{1}{2}(12 + 14)$$

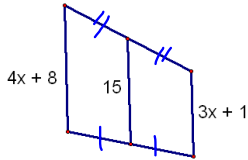
$$x = 13$$



$$x + 3 = \frac{1}{2}(6 + 20)$$

$$x + 3 = 13$$

$$x = 10$$



$$15 = \frac{1}{2}(4x+8+3x+1)$$

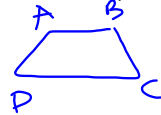
$$30 = 7x+9$$

$$21 = 7x$$

$$3 = x$$

Verify that ABCD is a trapezoid.

A(5,1)
B(-3,-1)
C(-2,3)
D(2,4)



$$\overline{AB} \quad m = \frac{1}{4}$$

$$\overline{BC} \quad m = 4$$

$$\overline{DC} \quad m = \frac{1}{4}$$

$$\overline{AD} \quad m = -1$$

$$\overline{AB} \parallel \overline{DC}$$

$$\overline{BC} \nparallel \overline{AD}$$

\therefore ABCD is a trapezoid

What are the endpoints of the median?

M, dpt of \overline{AD} \overline{BC}

$$M\left(\frac{5+2}{2}, \frac{1+4}{2}\right)$$

$$M\left(\frac{7}{2}, \frac{5}{2}\right)$$

Is it isosceles? No

$$AD = \sqrt{3^2 + (-3)^2}$$

$$\sqrt{18}$$

$$BC = \sqrt{(-3-2)^2 + (-1-3)^2}$$

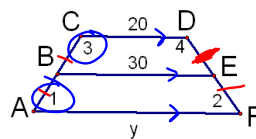
$$\sqrt{17}$$

A(5,1)
B(-3,-1)
C(-2,3)
D(2,4)



$$M\left(\frac{-3+2}{2}, \frac{-1+3}{2}\right)$$

$$M\left(\frac{-5}{2}, 1\right)$$



Isosceles trapezoid ACDF

$$m\angle 1 = 3x + 5$$

$$m\angle 3 = 6x - 5$$

$$3x+5+6x-5=180$$

$$9x=180$$

$$x=20$$

$$30 = \frac{1}{2}(20+y)$$

$$40 = y$$

HW
p442-443
9, 11, 13-19, 22, 25